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6 February 1956

MEMORANDUM FOR: Director of Central Intelligence

THROUGH: Deputy Director/Intelligence

SUBJECT: Primary Energy Production in the Sino-Soviet Bloc and the Free World

1. This memorandum is in response to your request for comparative data on the growth of primary energy production in the Sino-Soviet bloc and the free world, as derived principally from solid fuels, petroleum and water power.

2. During the next five years the Sino-Soviet bloc plans a higher rate of growth in energy production than the free world. Bloc energy production in 1955 equaled about 30 percent of free world production. In 1960 it will increase to about 40 percent. Despite this relative increase, however, the absolute gap between energy production in the bloc and the free world will not decrease. In fact the free world's primary energy production will increase 15,200 trillion Btu while bloc production will increase only 12,600 trillion Btu. Thus the gap will grow about 5 percent.

3. Soviet bloc energy production depends primarily on solid fuels, while over half of free world energy production comes from petroleum. As production of petroleum increases, however, the importance of solid fuels to the bloc will decline slightly. By 1960, solid fuels are expected to supply only about 75 percent of total bloc energy production compared with about 81 percent in 1955.

The USSR is just beginning to utilize natural gas produced with oil rather than waste it. The Sixth Five-Year Plan calls for increasing natural gas production from 8.1 million metric tons in 1955 to 32 million metric tons in 1960--equivalent to one quarter of crude oil production. In contrast, US natural gas production was 200 million metric tons in 1955--equivalent to over half of crude oil production.

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4. In 1955, hydroelectric power contributed only 0.5 percent of total Sino-Soviet bloc energy production and only 2 percent of the free world total. These ratios will not change significantly by 1960.

5. Electricity produced from nuclear energy will not affect significantly the world output of primary energy in 1960. In fact, in 1960 production of fissionable material for military and "peaceful" purposes will still use appreciably more electricity than will be generated by plants powered with nuclear fuel.

The USSR has announced that by 1960 it will have from 2,000,000 to 2,500,000 kilowatts of generating capacity in plants powered with nuclear fuel. If completed, these power plants could supply over 3 percent of total Soviet electric power output. Announced US plans provide for generating capacity of only 800,000 kilowatts by 1960 which could supply about 0.5 percent of total US electric power output forecast for that year.

6. The USSR, having produced 58 percent of the bloc's total primary energy output in 1955, will increase this share to 62 percent in 1960. Conversely, the US share of the free world's total will drop very slightly and will amount to about one half of the free world total in 1960.

7. The attached charts present the above data graphically. The attached table presents detailed data on the regional growth of primary energy production by principal categories.

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[redacted]

Assistant Director
Research and Reports

Enclosures:
1. Chart of USSR-US Energy Production
2. Chart of Bloc-Free World Energy Production
3. Table of Primary Energy Production

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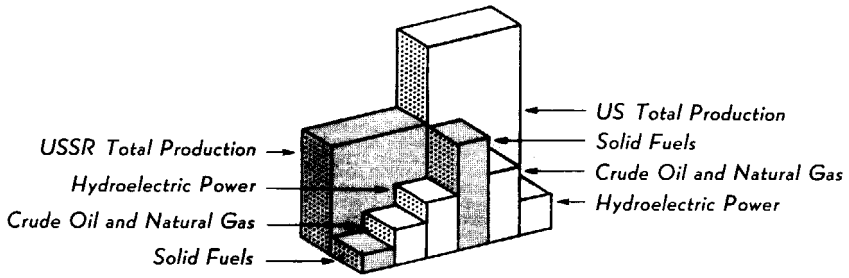
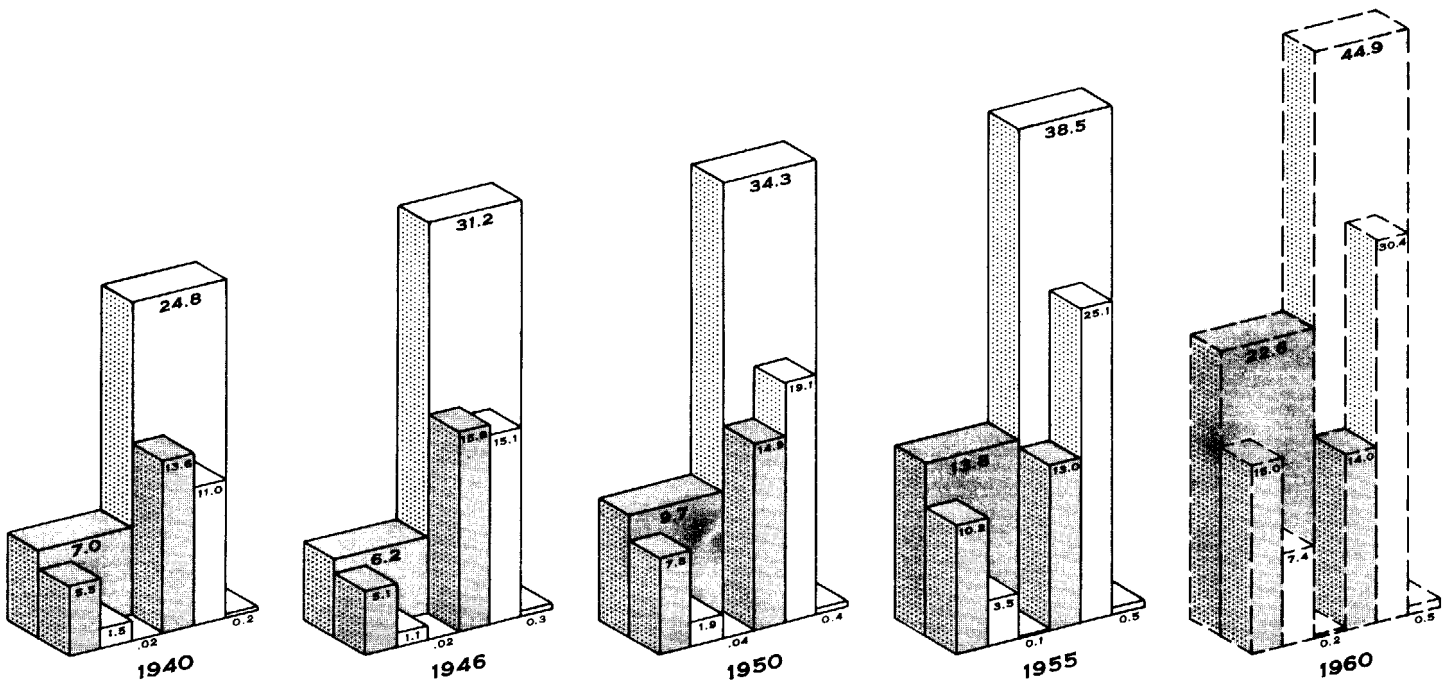
PRODUCTION OF PRIMARY ENERGY
USSR - US
1940 - 1960

QUADRILLIONS OF Btu.
(ADD 000,000,000,000,000)





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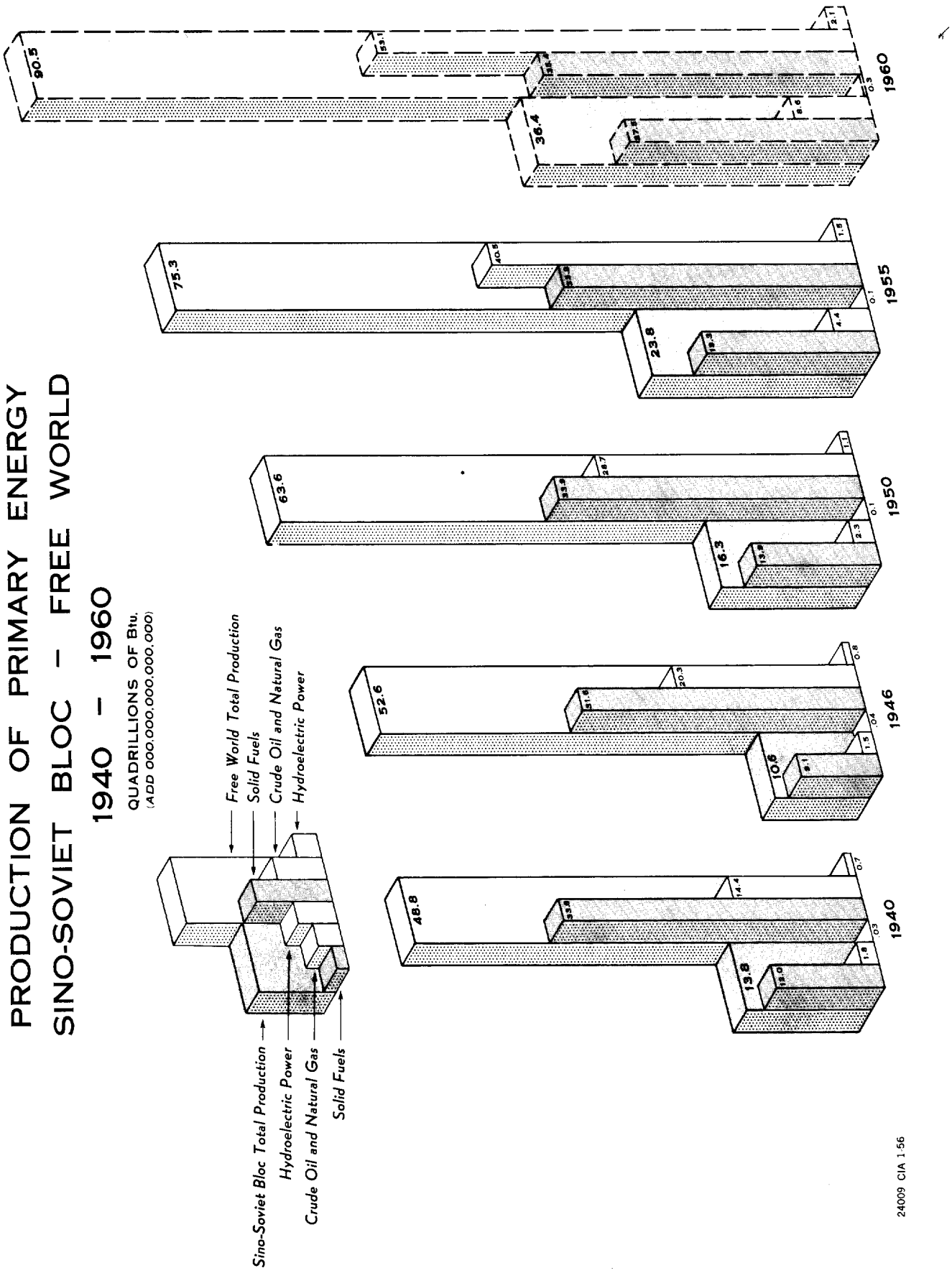

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GROWTH OF PRIMARY ENERGY PRODUCTION IN THE SINO-SOVIET BLOC AND FREE WORLD, 1940-1960

Region and Category	Production 1940 (Btu x 10^{12})	Production 1946 (Btu x 10^{12})	Average Annual Growth 1941-1946 (Percent)	Production 1950 (Btu x 10^{12})	Average Annual Growth 1947-1950 (Percent)	Production 1955 (Btu x 10^{12})	Average Annual Growth 1951-1955 (Percent)	Estimated Production 1960 (Btu x 10^{12})	Average Annual Growth 1956-1960 (Percent)
Sino-Soviet Bloc									
USSR									
Solid fuels a/	5,510	5,080	-1.4	7,770	11.2	10,230	5.7	15,030	8.0
Crude oil, natural gas b/	1,490	1,100	-4.9	1,880	14.3	3,450	12.9	7,380	16.4
Hydroelectric power c/	16	18	2	43	24.3	80	13.2	200	20.2
Total	7,016	6,198	-2.1	9,693	11.8	13,760	7.3	22,610	10.4
European Satellites d/									
Solid fuels	4,960	3,450	-5.9	4,930	9.3	6,660	6.2	8,750	5.6
Crude oil, natural gas	340	346	0.3	446	6.6	930	15.8	1,160	4.5
Hydroelectric power	4	7	10	7	0	14	14.9	20	7.4
Total	5,304	3,803	-5.4	5,383	9.1	7,604	7.1	9,930	5.5
Communist Asia e/									
Solid fuels	1,490	560	-15.0	1,220	21.5	2,440	14.9	3,700	8.7
Crude oil, natural gas	negligible	4	f/	4	0	20	38	70	28.5
Hydroelectric power	10	15	7	20	7	16	-4	50	25.6
Total	1,500	579	-14.7	1,244	21.1	2,476	14.8	3,820	9.1
Sino-Soviet Bloc									
Solid fuels	11,960	9,090	-4.5	13,920	11.2	19,330	6.8	27,480	7.3
Crude oil, natural gas	1,830	1,450	-3.8	2,330	12.6	4,400	13.5	8,610	14.4
Hydroelectric power	30	40	5	70	15	110	9.5	270	19.7
Total	13,820	10,580	-4.4	16,320	11.4	23,840	7.9	36,360	8.8
Free World									
US									
Solid fuels	13,580	15,810	2.6	14,860	-1.5	13,020	-2.6	14,020	1.5
Crude oil, natural gas	11,020	15,080	5.4	19,070	6.0	25,050	5.6	30,400	3.9
Hydroelectric power	210	320	7.3	390	5.1	450	2.9	480	1.3
Total	24,810	31,210	3.9	34,320	2.4	38,520	2.3	44,900	3.1
Free World less US									
Solid fuels	20,220	15,750	-4.1	19,060	4.9	20,210	1.2	21,350	1.1
Crude oil, natural gas	3,330	5,190	7.7	9,580	16.6	15,490	10.1	22,700	7.9
Hydroelectric power	450	460	0.4	670	9.9	1,060	9.6	1,570	8.2
Total	24,000	21,400	-1.9	29,310	8.2	36,760	4.6	45,620	4.4
Free World									
Solid fuels	33,800	31,560	-1.1	33,920	1.8	33,230	-0.4	35,370	1.3
Crude oil, natural gas	14,350	20,270	5.9	28,650	9.0	40,540	7.2	53,100	5.5
Hydroelectric power	660	780	2.8	1,060	8.0	1,510	7.3	2,050	6.3
Total	48,810	52,610	1.3	63,630	4.9	75,280	3.4	90,520	3.8

Relationships in the Production Of Primary Energy (Percent)	1940	1946	1950	1955	1960
Sino-Soviet Bloc/Free World	28.3	20.1	25.6	31.7	40.2
USSR/US	28.3	19.9	28.2	35.7	50.4

a. includes coal, peat, oil shale and firewood.
b. including natural gas liquids.
c. available for transmission from power plant.
d. includes Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Rumania and Poland. Soviet Zone Austria included through 1955.
e. includes Communist China, North Korea, Outer Mongolia and North Vietnam.
f. not computed.

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